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CLAIMS:

What is claimed is:

5   1.   A method for acquiring a lock on a system resource
in a computer system, comprising:
    determining if a lock is uncontested using an
atomic operation; and
    acquiring the lock if the lock is uncontested.

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    2.   The method of claim 1, wherein the atomic operation
is a cross-system atomic operation.

    3.   The method of claim 1, wherein the atomic operation
15 is a remote atomic operation provided by a system area
network.

    4.   The method of claim 1, wherein the atomic operation
is one of a fetch-and-replace atomic operation and a
20 compare-and-swap atomic operation.

    5.   The method of claim 1, wherein determining if a lock
is uncontested includes using a lock table having an
entry for each available lock.

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    6.   The method of claim 5, wherein the lock table is
distributed over a plurality of nodes in a network.

    7.   The method of claim 5, wherein the lock table
30 resides with a single node in a network.

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8. The method of claim 6, wherein a hash on a lock name of a lock is used to identify which node of the plurality of nodes holds a portion of the lock table in which an entry for the lock is located.

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9. The method of claim 1, wherein determining if a lock is uncontested comprises:

creating a lock message having a lock address and a parameter that is to be compared with or added to a value

10   in a memory location corresponding to the lock address based on the atomic operation that is performed by the lock message.

10. The method of claim 9, wherein determining if a lock

15   is uncontested further comprises:

posting the lock message to a Send Queue; and

examining results of the atomic operation to determine if the lock is contested.

20   11. The method of claim 1, further comprising:

initiating a fairness mechanism for performing lock acquisition if the lock is determined to be contested.

12. A computer program product in a computer readable

25   medium for acquiring a lock on a system resource in a computer system, comprising:

first instructions for determining if a lock is uncontested using an atomic operation; and

second instructions for acquiring the lock if the

30   lock is uncontested.

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13. The computer program product of claim 12, wherein the atomic operation is a cross-system atomic operation.

14. The computer program product of claim 12, wherein the atomic operation is a remote atomic operation provided by a system area network.

15. The computer program product of claim 12, wherein the atomic operation is one of a fetch-and-replace atomic operation and a compare-and-swap atomic operation.

16. The computer program product of claim 12, wherein the first instructions for determining if a lock is uncontested include instructions for using a lock table having an entry for each available lock.

17. The computer program product of claim 16, wherein the lock table is distributed over a plurality of nodes in a network.

18. The computer program product of claim 16, wherein the lock table resides with a single node in a network.

19. The computer program product of claim 17, wherein a hash on a lock name of a lock is used to identify which node of the plurality of nodes holds a portion of the lock table in which an entry for the lock is located.

20. The computer program product of claim 12, wherein the first instructions for determining if a lock is uncontested comprises:

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instructions for creating a lock message having a lock address and a parameter that is to be compared with or added to a value in a memory location corresponding to the lock address based on the atomic operation that is

5 performed by the lock message.

21. The computer program product of claim 20, wherein the first instructions for determining if a lock is uncontested further comprises:

10   instructions for posting the lock message to a Send Queue; and

instructions for examining results of the atomic operation to determine if the lock is contested.

15 22. The computer program product of claim 12, further comprising:

third instructions for initiating a fairness mechanism for performing lock acquisition if the lock is determined to be contested.

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23. An apparatus for acquiring a lock on a system resource in a computer system, comprising:

means for determining if a lock is uncontested using an atomic operation; and

25   means for acquiring the lock if the lock is uncontested.

24. The apparatus of claim 23, wherein the atomic operation is a cross-system atomic operation.

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25.   The apparatus of claim 23, wherein the atomic operation is a remote atomic operation provided by a system area network.

5   26.   The apparatus of claim 23, wherein the atomic operation is one of a fetch-and-replace atomic operation and a compare-and-swap atomic operation.

27.   The apparatus of claim 23, wherein the means for

10   determining if a lock is uncontested includes means for using a lock table having an entry for each available lock.

28.   The apparatus of claim 27, wherein the lock table is

15   distributed over a plurality of nodes in a network.

29.   The apparatus of claim 27, wherein the lock table resides with a single node in a network.

20   30.   The apparatus of claim 28, wherein a hash on a lock name of a lock is used to identify which node of the plurality of nodes holds a portion of the lock table in which an entry for the lock is located.

25   31.   The apparatus of claim 23, wherein the means for determining if a lock is uncontested comprises:
        means for creating a lock message having a lock address and a parameter that is to be compared with or added to a value in a memory location corresponding to

30   the lock address based on the atomic operation that is performed by the lock message.

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32. The apparatus of claim 31, wherein the means for determining if a lock is uncontested further comprises:

    means for posting the lock message to a Send Queue; and

5   means for examining results of the atomic operation to determine if the lock is contested.

33. The apparatus of claim 23, further comprising:
    means for initiating a fairness mechanism for
10 performing lock acquisition if the lock is determined to be contested.